ABSTRACTS

The following are abstracts of Theses submitted during the academic year 1929-30 by students of the School of Medicine in partial fulfillment of the requirements for the degree of Doctor of Medicine.

BURN, CASPAR G.: A Study of the Experimental Production of Postmortem Bacterial Invasion.

Postmortem bacterial invasion was studied in rabbits and guinea pigs, both with respect to the native flora of the animal and to the fate of organisms artificially introduced. It was found that anaerobes could usually be cultivated from organs kept at room temperature; *B. coli* and micrococci being found less frequently, the former rarely. When introduced experimentally *Bacillus pyocyaneus, B. Friedländer, B. influenzae, Streptococcus viridans, B. diphtheriae, B. anthracis, B. megatherium,* and *B. cereus* are not capable of invading tissues after death. The invasive properties of *Streptococcus hemolyticus* and pneumococcus are uncertain. *B. coli* and staphylococci are not able to invade the organs when placed in the upper respiratory tract and in subcutaneous tissues. Organisms introduced into the brain are capable of reaching the heart via the blood stream.

R. W. H.

CUNNINGHAM, ROBERT D. M.: Preparation of Sodium Chloride and Sodium Bicarbonate for Hypodermoclysis.

The desirability of the introduction of bicarbonate, as well as chloride, in the treatment of dehydration is pointed out, and a method for preparation of a suitable non-irritating solution of these salts is given. R. W. H.

DICKAR, LEWIS: Antibody Response in Non-infected and Infected Animals Following Specific Vaccine Therapy.

An agar mass, introduced subcutaneously in rabbits, was implanted with *Staphylococcus aureus.* After the agglutinin titer of the serum of these animals had reached its highest level it could not be increased by the injection of autogenous vaccine. R. W. H.

DOROSZKA, VINCENT A.: Temperature Changes in the Extremity Following Simultaneous Ligation of the Artery and Vein and of the Artery Alone.

On a series of seven dogs the right external iliac artery and vein were occluded, while on the left side the artery alone was tied. Within from 2 to 6½ hours both lower extremities were at room temperature. The right extremity cooled slightly more rapidly than did the left, and the

return to normal temperature was slightly slower. This secondary rise may be either temporary or permanent. R. W. H.

DUNBAR, HELEN F.: Optic Mechanism in *Carassius auratus.*

Study of material from the brain of *Carassius auratus* var. *macrophthalmicus* shows with great clearness certain elements of the optic and cerebellar mechanisms. R. W. H.

FINLEY, KNOX H.: The Neuro-anatomy of a Case of Respiratory Failure.

From a review of the literature it is clear that the respiratory nervous mechanism is an integrative one, involving several levels of the central nervous system, and that the reticular formation of the medulla is one of the primary levels for integration of respiratory impulses. A case is presented of a child with bulbar poliomyelitis, dying in respiratory failure and showing no clinical evidence of pneumonia, with anatomical evidence only of a slight pneumonic process. There was destruction of certain nerve cells in the anterior horns of the cervical cord in which lie the nuclei for the phrenic nerves, and, in addition, focal areas of necrosis were found in the reticular formation of the medulla. R. W. H.

HART, JAMES C.: The Effect of Morphine Addiction and Withdrawal on the Blood Sugar Content of the Rabbit.

The injection of morphine causes an immediate rise in blood sugar, followed in a few days by a tolerance to the drug. When the administration of the drug is stopped blood sugar again rises. These experiments indicate that on withdrawal of the drug there is no definite hypoglycemia to account for certain withdrawal symptoms seen in man. L. J. S.

KALKSTEIN, DAVID: Studies in the Chemical Mechanism of Gastric Secretion.

The mechanism of the secretion of gastric HCl was studied by means of analysis of chloride levels in the circulation. An attempt was made to isolate gastric pouches with intrinsic and independent vascular supply, but in all cases the original vessels atrophied and, when gangrene did not occur, this was due to the ingrowth of new vessels. Intravital staining of frog and dog stomachs with trypan blue gave no cogent information as to the site of HCl secretion. Experiments were then undertaken with anesthetized dogs in which the chloride concentration and the specific gravity were determined on samples of blood taken from the femoral artery, femoral vein, gastric, splenic, and renal veins, and the effect of histamine noted. Similar experiments were performed with decerebrate animals. In the animals anesthetized with amytal there was a steady drop in water and chloride con-

centration, it being assumed, with regard to the gastric veins at least, that a change in specific gravity means an inverse change in water concentration. The steady fall in chlorides and water was not noted in the decerebrate animals. The chloride concentration in the gastric vein was below that in the systemic circulation except during the period of recovery from histamine stimulation. From analysis of the water and chloride loss it appeared that the gastric juice must be an isotonic solution. During the period of maximum secretion the absolute chloride level of the femoral vein was higher than that of the artery, and the absolute chloride concentration in the renal vein was high. Hence it appeared that chloride was being supplied to the circulation from the tissues, and that the kidney was retaining chlorides. Blood from the intestinal veins also showed high chloride levels. R. W. H.

KROSNICK, MORRIS Y.: Studies in Subcutaneous Absorption. II. The Rate of Absorption of Dilute Glucose Solutions.

Rats received by subcutaneous injection 1 cc. of a 5 per cent glucose solution. Some of the animals were sacrificed immediately, the rest after 15, 30, or 60-minute intervals. The infiltrated regions were dissected and the amount of unabsorbed glucose determined. Similar experiments with 1 per cent glucose and with saline showed that a reducing substance was added to any injected liquid. The concentration of this substance increased for the first half-hour after injection, then gradually decreased. Attempts to eliminate it from the analysis by means of protein precipitation gave inconsistent results. From a study of the concentration of unabsorbed glucose, corrected for the presence of the reducing substance above mentioned, it appears that the absorption of glucose from subcutaneous tissues proceeds in accordance with the law of mass action. R. W. H.

LAVIETES, PAUL H.: The Effect of Ingested Urea on the Nitrogen Metabolism.

The findings of previous investigators that with an addition of urea to the diet the urea will not be excreted quantitatively, although there is no rise in non-protein nitrogen, are confirmed. It is suggested that the effect of the urea is to decelerate protein catabolism. R. W. H.

LEHNER, JACK: The Influence of Pitressin and Pitocin on Insulin Hypoglycemia.

Pitressin (β-hormone of Kamm) was shown to have a marked hyperglycemic action in insulinized rabbits, while pitocin (α-hormone of Kamm) had no such effect, and did not add to the effect of pitressin. R. W. H.

MACDONALD, MILTON T.: Rôle of Arterial Wall Musculature in the Dynamics of the Circulatory System.

Evidence is sought to establish the view that arterial wall musculature not only passively maintains vessel tone but also actively contracts, propelling the blood. The author was able to detect pulsations in the fingers 15 minutes after the blood supply had been cut off by an external pressure appreciably above systolic blood-pressure. A. B. T.

MILLSTEIN, HOWARD: A Study of the Urea Content of Blood Passing Through the Kidney in Normal and Phlorizinized Dogs.

Analysis of the urea content of blood from the artery and vein of the kidney of normal dogs revealed no significant differences. In phlorizinized dogs, however, the urea level of the venous blood was decidedly lower. It is suggested that the increase in urea excretion is largely due to increased blood flow through the kidney. R. W. H.

SMITH, RUTH E.: A Clinical Study of an Epidemic of Erythema Infectiosum in Branford, Connecticut.

See Lawton, A. L.: page 453.